

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1-13. (Cancelled)

14. (Previously Presented) A method for providing a real-time broadcast service in a mobile communication system, the mobile communication system comprises a radio access network and a plurality of mobile terminals, where the radio access network has an original service hierarchy, and the original service hierarchy is divided into cells and provides original services using scrambling codes of the original service hierarchy; the method comprising:

adding a broadcast service hierarchy into the radio access network, dividing the broadcast service hierarchy into cells, assigning downlink special scrambling code for the broadcast service hierarchy, and using the same downlink special scrambling code to broadcast the same content of the real-time broadcast service to the mobile terminals in the cells of the broadcast service hierarchy, wherein the downlink special scrambling code is different from the scrambling codes of the original service hierarchy, and the signals of the real-time broadcast service transmitted in the cells of the broadcast service hierarchy are the same; and

superposing locations of the cells of the broadcast service hierarchy over those of the original service hierarchy so as to form the structure of the cells of the original

service hierarchy plus the cells of the broadcast service hierarchy, wherein the cells of the broadcast service hierarchy utilize the same downlink special scrambling code for transmitting the real-time broadcast service;

any of the mobile terminals implementing the original services using the scrambling codes of the original service hierarchy, receiving the real-time broadcast service using the downlink special scrambling code.

15. (Previously Presented) The method according to claim 14, wherein the process of assigning a downlink special scrambling code in the broadcast service hierarchy comprising: adding a scrambling operation using the downlink special scrambling code in the base station sender of each cell in the original service hierarchy, wherein the information of the broadcast service hierarchy and that of the original service hierarchy either share the same power amplifier or utilize respective power amplifiers.

16. (Previously Presented) The method according to claim 15, wherein the process of the sender includes performing modulation and spectrum spreading for the original service and real-time broadcast service;

the modulation and spectrum spreading for the original service includes source encoding, channel encoding, Quaternary Phase-Shift Keying (QPSK), spectrum spreading and scrambling the spectrum spread results utilizing the downlink scrambling code of each cell for the original service;

the modulation and spectrum spreading for the real-time broadcast service includes source encoding, channel encoding, QPSK, spectrum spreading and scrambling the spectrum spread results utilizing the downlink special scrambling code for the real-time broadcast service.

17. (Previously Presented) The method according to claim 14, wherein the demodulation unit of RAKE receiver of the mobile terminal adopts the downlink special scrambling code for specially receiving the real-time broadcast service; after the signals pass the RAKE receiver, the signal of original service and the signal of broadcast service are separated, and channel decoding and source decoding of the original service and those of real-time broadcast service are implemented separately; the channel code of RAKE receiver is the special broadcast channel code, namely the downlink special scrambling code.

18. (Previously Presented) The method according to claim 14, wherein said structure of the cell of the original service hierarchy plus the cell of the broadcast service hierarchy is that range and location division of the cell of the original service hierarchy plus the broadcast service hierarchy is the same as that of the original service macro cell covering hierarchy in which the mobile network is covered by macro cells.

19. (Previously Presented) The method according to claim 14, wherein the method further comprising: keeping the mobile terminal under idle mode for the original service when the mobile terminal switches to the broadcast service hierarchy; when the

mobile terminal is located in a macro cell, according to the channel estimation result for the public pilot frequency of this cell and the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel; the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service; when the mobile terminal is located in a micro cell or a pico cell, according to the channel estimation result for the public pilot frequency of one or multiple adjacent cells with powerful signals, merging the received signals of multi cells and demodulating the signals on special broadcast channel; the mobile terminal selecting and reselecting cells, implementing location update and receiving paging information in terms of the process of original service.

20. (Previously Presented) The method according to claim 14, further comprising: the mobile terminal evaluating the interference value to a service channel caused by the downlink special scrambling code according to the demodulated special broadcast channel data and the information of channel transmission condition, scrambling code and channel code, and subtracting this interference value from the received signal.

21. (Cancelled)

22. (Previously Presented) The method according to claim 3, further comprising: the mobile terminal switching between the original service hierarchy and the broadcast service hierarchy, and

when switching to the broadcast service hierarchy, the mobile terminal staying in a cell of the broadcast service hierarchy, controlling handoff of the cell, and monitoring paging of the cell in the broadcast service hierarchy.

23. (Previously Presented) The method according to claim 15, further comprising: the mobile terminal switching between the original service hierarchy and the broadcast service hierarchy, wherein

the working mode of the mobile terminal keeps unchanged for the original service, pilot channel of the cells in the original service hierarchy is shared, and the real-time broadcast service is supported under both idling mode and connecting mode.

24. (Previously Presented) The method according to claim 14, wherein a same broadcast channel code is employed in all the cells of the broadcast service hierarchy for transmitting the broadcast service.